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OBSERVATIONS ON THE HABITS OF THE WHITE-WINGED DOVE

By ALEXANDER WETMORE

THE OBSERVATIONS on which the following notes on the habits of the White-winged Dove (*Melopelia asiatica mearnsi* Ridgway) are based were made in the main along the Gila River in Maricopa County, Arizona, near the small settlement of Arlington. Field work in this region was carried on continuously from June 3 to 17, 1919, in the interests of the Biological Survey, U. S. Department of Agriculture. The tract under irrigation from the Gila at Arlington is comparatively narrow and there are still extensive growths of mesquite and other similar shrubs in the lowlands that as yet have not been cleared away. Small groves of cottonwoods and willows border the river, and there are extensive alkaline areas adjoining them where the ground may be marshy or swampy in character. On either side is the desert where mesquites and palo verdes grow in the dry washes and the creosote bush covers the open flats. Chollas are abundant and the giant cactus is common. To the eastward near the settlements of Palo Verde and Buckeye the irrigated lands are broader in extent and the country is more thickly settled.

The interesting habits of the White-winged Dove have been described in considerable detail by Bendire (Life Histories of North American Birds, 1892, pp. 145-148) and by Gilman (Condor, 1911, pp. 52-54), while scattered notes have been published by others. It is believed that the present observations include facts that have been previously unknown, although there is much that still remains to be learned concerning this species.

The White-winged Dove is known familiarly to ranchers in this region as White-wing, Sonora Dove or Mexican Dove, the last two of these appellations arising from the migratory habit of these birds that was believed to carry them into Mexico. White-wings were reputed to come to Arlington between April 20 and May 1 each year, and to be present in full force by May 20. On my arrival in June I found them breeding in pairs scattered through the cultivated lands or the open desert, or congregated in large colonies in suitable mesquite *montes* near the Gila River. One or two pairs were found at intervals in cottonwoods beside roads or near ranch houses, but the greatest interest centered in the large congregations to be found in suitable tracts of mesquites. These rookeries were often of considerable extent. One located three and one-half miles south of Arlington extended over an area a quarter of a mile square, while another three miles beyond occupied a grove nearly half a mile wide and an equal distance in length. The birds maintained regular flights across country and gathered in flocks to feed, so that they were conspicuous figures in the bird life of the region. It was difficult to estimate the number present, as they were scattered about in dense groves of mesquites, but it was believed that there were at least two thousand pairs in the largest colony examined. The total number present in the area was large. It appeared that the period for breeding among these birds was somewhat irregular. A part of them evidently began to nest soon after their arrival, as a number that were feeding young were observed on June 6. Others were nest-building on June 17, so that the entire period of reproduction was somewhat prolonged. In the colonies nests were scattered about irregularly through the mesquites. Sometimes two or three nests were placed in the same tree, or again one

pair occupied a tree alone. There was no crowding and apparently the birds, while gregarious, were too truculent to permit close proximity of nests. Often two or three trees, suitable in every way for the primitive needs of these doves, intervened between occupied sites.

In most cases the nest, slight in structure, though usually somewhat larger and bulkier than that of the Mourning Dove, was placed in a mesquite, though a few were observed on the desert in palo verdes. Nests were built on inclined living limbs where forking of small branches gave a firm, broad support. The site varied from six to twenty feet from the ground, with about eight feet as an average height. In most of those that were examined the structure was composed of dead twigs of the mesquite, small in diameter, and from six to ten inches long. For the inner layers small twigs were chosen that had been dead for some time, so that the spines, abundant on mesquite limbs, crumbled at a touch and caused no discomfort to the brooding bird or to the young. The nest was flat and had merely enough depression to receive the eggs that often were visible through the loosely interlaced twigs at the sides. Two eggs formed a complete set. They were distinctly buffy in color when fresh but varied in depth of shade so that occasional sets were nearly white. When blown these eggs frequently fade out even when not exposed to light so that they appear dull white with hardly a suggestion of buff, a circumstance that caused unpleasant surprise when, a few days after they had been blown, I came to examine sets that I had chosen originally for their rich color. The eggs of the White-wing appeared to have a duller surface than the eggs of the Mourning Dove. Although two eggs formed a complete set it was not unusual to find that one was infertile; in addition there may have been mortality for some reason after eggs had hatched, as many nests were noted that contained only one young bird. Young White-winged Doves when first hatched were well covered with long, straggling down, that in color was dull white slightly tinged with buff. This natal down was replaced by secondary feather growth so rapidly that it had disappeared for the great part at the end of the first week. The feather quills that followed the down did not burst until they were quite long so that for a time the young were as grotesque as young cuckoos. The young birds were fed by regurgitation and at the age of four days received solid food in the form of undigested seeds, in addition to the usual diet of "pigeon's milk". Fledglings left the nest when between three and four weeks old, as nearly as I could ascertain. The first young bird able to fly was noted on June 12, and by June 15 birds of this age were fairly common. These young were still dependant upon their parents for food, and though able to fly well were undeveloped and small. On first leaving the nest they perched about in the mesquites, always seeking shade, but in a few days were often found on the ground, preferably where the soil was sandy. There they walked about in the thin shade of the mesquites, examining bits of sticks and other refuse curiously, often testing such fragments with their bills, or rested quietly, squatting on the earth. In many instances it was found that they were heavily infested with small ticks against whose attacks they seemed inexperienced. No ill results from the presence of these parasites were noted and older birds were free from them.

I was of the opinion that males did not aid in incubation, but this I was unable to ascertain with certainty. Occasionally I saw both parents perched on the sides of a nest that contained young, but all birds that were definitely identified while engaged in incubating, were females. Each male chose a perch near the

nest site, usually from ten to thirty feet away, and remained there on guard while the female was sitting, save for the time required to secure food. Such perches were selected in situations that were well shaded from the direct rays of the sun during the heat of the day, and when not occupied could be readily located by the collection of ordure, often considerable in quantity, on the ground beneath.

In early morning White-winged Doves began to call soon after day break, and when the sun appeared above the horizon were heard cooing in every direction. At this period of the day many males came out to rest on dead limbs in openings in the mesquite *montes*, or flew to more distant perches in mesquites or cottonwoods where they basked in the warm rays of the sun. Others chose perches in the tops of living mesquites where the thin foliage did not cast an appreciable shade. In mid-forenoon when the heat became oppressive they retired again to protected stations. Males had two distinct songs, that were given without apparent choice. One of these efforts may be represented by the syllables *who hoo who hoo-oo'*. The first three notes were gruff and abrupt, the last one strongly accented and somewhat prolonged. The other song, longer and more complicated, may be noted as *who hoo, whoo hoo, hoo-ah', hoo-hoo-ah', who-oo*. In this case the song was separated in five parts. The first section was short and low, the second louder and almost merged with the third; the third and fourth were more musical than the others and were strongly accented on the last syllable, while the last part was lower and was more or less slurred. At times the doves gave one or the other of these two songs in repetition for long intervals, or again alternated them rapidly. The longer song was more varied and pleasing to the ear as the other frequently was given in a burring, guttural tone that was often unpleasant. In addition to these songs males uttered a low, querulous, muttered note resembling *queh queh-eh* that served as a call to the female, or was given when squabbling with other males. No females were observed in the act of cooing and I was unable to ascertain their notes. Although males did not coo in unison the effect produced by hundreds of them calling at the same time was remarkable. Save for one or two birds that might chance to be near at hand, their notes seemed to come from a distance, and were so blended that it was difficult to pick out individual songs. In a large colony the volume of sound produced was so great that it carried readily for a distance of a mile and yet the tone produced was so soft that it was not deafening when near at hand. On the contrary the whole formed an undertone, continuous, and to my ear not unpleasant, that did not intrude sharply on the senses, of so vague a nature that faculties perceptive to sound soon became accustomed to it, so that through constant repetition it might pass unnoted. Although it filled the air with the same effect as that produced by the rushing of water, other sounds, the song of a Redwing or a Lucy's Warbler, the cooing of a Mourning Dove or the stamping of a horse, were heard through it clearly even when such noises originated at some distance. The effect as a whole was most remarkable and once experienced lingers long in memory.

Combats among males were frequent, but these were bloodless battles, as the birds merely flapped at one another uttering guttural notes, or when near at hand struck quickly with one wing. Often one male was at much trouble to drive all others from some trees, and once I observed one hustle away a pair of Mourning Doves that chanced to intrude upon his domain.

When females were flushed from nests containing fresh eggs usually they flew directly away with a loud *clap, clap* of their wings. When incubating or brooding young the procedure was often different. Then they dropped to the ground and fluttered rapidly away, continually falling forward as though injured, while moving the partly spread wings tremulously. Their course on such occasions was behind low hanging limbs or fallen branches where it was difficult to secure a clear view, a circumstance that should aid in attracting attention from any enemy. In case the male was near and had not recognized me he often dropped down to the ground and stalked about truculently, with the feathers on his back elevated and those on his throat and upper breast raised until each one stood out separate from the others, so that as he walked along he appeared twice his normal size. Occasionally other males from trees nearby flew down precipitately toward the female as though to determine what was wrong with her.

In displaying before females males had a curious habit or pose in which they raised the tail high and tilted the body forward. At the same time the tail was spread widely and then closed with a quick flash of the prominent black and white markings. In the breeding colonies males at intervals flew out with quick, full strokes of the spread wings, rising until they were thirty or forty feet in the air. The wings were then set stiffly with the tips decurved, while the birds scaled around above the mesquites in a great circle that often brought them to their original perches. The contrasted markings of the wings showed brilliantly during this flight and the whole was most striking and attractive. In the cooler part of the morning males performed constantly in this manner over the rookery.

When I sat down near nests the owners often perched near by, turning their heads curiously and watching me closely for many minutes. At the same time they twitched the tail nervously, spreading it as described above. This action was shown by wing-tipped birds also, so that it is apparently used when the birds are nervous, excited, or curious, as well as in display.

White-winged Doves start in flight with a loud clapping of wings that is accompanied by a whistling noise. When the birds are well under way their passage, while swift and direct, is noiseless. The sound at the start resembles that made by domestic pigeons. The White-wing, like certain tropical doves (for example the White-headed and Scaled pigeons) in perching in cottonwoods or other trees with dense foliage, usually alights among clumps of leaves on the higher outer branches rather than on dead limbs or in open situations such as those chosen by Mourning Doves. So well did the birds conceal themselves that after I had seen half a dozen fly into such a tree, it was not unusual to be unable to pick out a single dove in spite of their large size. In the mesquite they followed the same practice in perching, so that they were often observed merely as silhouettes through the thin foliage. When perched in trees they remained quiet save when they were calling.

In the desert areas White-wings nested more or less at random, wherever suitable palo verdes and mesquites occurred. In such localities males frequently basked in the morning sun on the flat tops of the huge sahuaros. There may be some irregularity in the period of breeding in this pigeon as on the evening of June 9, at Webb's Well near the northwest base of Woolsey Peak (Gila Bend Mountains), I found White-winged Doves gathering at dusk in little flocks of half a dozen or more to roost in palo verdes and mesquites along the banks of a dry wash. All that were killed in such localities were males. These desert birds proved to be warier than those found in the cultivated lands.

The morning flight from the colonies near the Gila River began an hour after sunrise and continued until nearly noon. During the middle of the day the birds were quiet, but they began again to pass out to feed in the late afternoon, continuing until sunset. While in the mesquite *montes* I saw little of these daily flights, save when birds chanced to pass overhead, as the cover was too dense, but from the open country surrounding the groves the interesting movement of the birds was easily observed. The White-wings left the colonies singly or in little flocks of five or six. As they travelled, these smaller bands frequently joined until often fifteen or twenty birds were flying in one group. A purple drupe, one-fourth of an inch in diameter, borne by a spiny shrub (*Condalia spathulata*) was a favorite food at this season and the birds also ate the fruits of the giant cactus as rapidly as they ripened. Various seeds were taken also. Harvesting of grain began in this valley about the first of June and continued until the end of the month. Fields of wheat or barley that had been cut recently were attractive to the White-wings as here they found an abundant source of food. The wheat grown in this region shattered (or shelled out) badly during the process of cutting, binding, and shocking, so that kernels of grain were scattered thickly over the fields. Further, there was much additional waste grain from heads matured or stalks too short to be bound that fell to the ground when cut. As may be imagined the White-wings sought this food supply eagerly. They were gregarious in feeding as in nesting so that newcomers passing over the grain fields usually decoyed to those already on the ground until many had gathered in one spot. The grain stubble was cut high and afforded the feeding bands shelter, as the doves were short in leg and walked about with the body bent forward. It was often the case that not a bird was seen in looking across a field of wheat stubble, though several hundred might be feeding there under shelter of the wheat stalks and the low levees thrown up to direct the flow of the water used in irrigation while the crop was being grown. White-wings were wary and easily alarmed while feeding. At times I crawled up under shelter of weeds to watch them at close range. If one of the feeding birds happened to observe some slight motion, the heads of all were up in an instant and all remained motionless, while in a minute or so they usually flew hastily in sudden alarm. Where they were shot at they became even more wary. After feeding, little groups of White-wings often flew up to rest for a time in the shelter of cottonwoods or mesquites.

Occasionally, when feeding in fields where wheat had not been shocked a dove hopped up on one of the bundles of bound grain and pecked at the heads of wheat, choosing, preferably, those that were short so that they were held firmly by the twine. Or a flock of half a dozen dropped down on a shock of wheat and fed on the cap sheaves for a few minutes. Usually, however, the birds preferred to feed in the more secure cover of the stubble and confined their attention to the abundant waste grain as long as this was available. When wheat was not threshed within a short time after it was cut these doves were said to cause serious damage to the grain in the shock. This was particularly true in the case of isolated fields that remained after the surrounding crops had been removed. For this reason the White-winged Doves were in bad repute among many of the ranchers.

It has been common practice for many years for sportsmen to hunt White-winged Doves during the months of June and July when the birds were ranging over the cultivated fields. Though this has been done under the guise of pro-

teeting crops it has been carried on in the main simply for sport, as the majority of the doves killed are shot in stubble fields from which the grain has been removed, or when in flight to or from the colonies in localities where they may be doing no damage. Occasionally men and boys even invaded the nesting colonies and slipped about among the low mesquite potting the male birds or shooting the females as they sat on their nests containing eggs and young. Others, waiting until the squabs were nearly grown, knocked the young doves from their nests with poles and gathered them in sacks for table use. Such harrying during the season when the birds are breeding can not be considered legitimate and can lead only to the decimation of the species. The mortality among young from the killing of their parents is tremendous.

Hunters have given the matter of damage by White-winged Doves much publicity in the local press in order to insure that they may be allowed to kill the doves with impunity. Most of the claims made concerning damage by these birds are based upon the finding of quantities of wheat in the crops of the birds that are killed. Personally I shot a considerable number of doves for examination and in most instances found wheat in their crops. Observation of the feeding birds, however, soon showed that all save a very small part of this grain was waste gleaned from the stubble. For example, White-winged Doves were feeding in droves in fields near Palo Verde where wheat was in the shock, yet on careful examination of 140 acres distributed in 8 fields I was able to find only nominal damage in three fields covering 60 acres. Where nominal damage was indicated I found from 10 to 30 heads of wheat on scattered bundles that had a part of the kernels missing. This injury was so slight that it amounted to nothing. Thirty-five acres of this grain belonging to William Walton of Palo Verde when threshed yielded 435 sacks of wheat, a sufficient commentary on the absence of damage. Claim was made that the White-wings occasionally attacked wheat or barley before it was cut. Where the grain had lodged or fallen badly this was true, in some cases at least, but it did not seem probable that the doves would injure standing grain unless in occasional fields where the stalks were very short through alkali in the soil, lack of water or other reasons.

Where the doves are doing actual damage they should be driven out, but this matter should be left entirely to the ranchers and should not be made an excuse for general hunting. The birds are easily frightened and can be driven from fields by a comparatively small amount of shooting. Damage was without question more serious during the first settlement of this portion of the Gila Valley, as ranches then were widely scattered and threshing outfits few, so that it was necessary often for wheat to be exposed for a long time in the shock before it was removed from the fields. At present, however, many of the ranchers are using small combination harvesters that cut the grain and thresh it at one operation, and the entire crop is handled so rapidly even when dependence is placed upon binding and threshing that opportunity for damage is slight. Where, for any reason it is necessary to leave wheat in the field it may be stacked and the top of the stack capped with tarpaulins when it will be safe from all depredation. In 1919, according to my observation, the damage from White-winged Doves was wholly negligible.

Many hunters claimed that if they were not permitted to kill White-wings during the breeding season they would get no shooting at all, as the birds leave the region immediately after rearing their young, an excuse that is poor at best, but that may be considered for the moment. From information available it seems

that though the doves may forsake the cultivated fields they feed in flocks on the desert wherever food is available and that large numbers remain until October or later each year. The practise of hunting these doves in the nesting season is inexcusable, save in occasional instances where it is necessary to protect crops. With the rapid settlement of the country and the reclaiming of land under new irrigation projects at present under way, the large colonies of the White-winged Doves in the lower Gila Valley will disappear. The mesquite groves in which these birds nest furnish valuable wood for domestic use and for fence posts so that the mesquite *montes* are being steadily cut away. The doves will in consequence be reduced in number as they have been elsewhere, near Phoenix and Tucson, but should remain fairly common, as scattered pairs will continue to nest on the desert and others will take up domiciles in cottonwoods and other trees scattered through the cultivated fields and along the irrigation ditches.

Washington, D. C., February 18, 1920.

A NEW PTARMIGAN FROM MOUNT RAINIER

By WALTER P. TAYLOR

WITH THREE PHOTOS

IN COMMENTING on the status of the three currently recognized subspecies of white-tailed ptarmigan, Riley has suggested (Canadian Alpine Journal, 1912, p. 60) that a specimen from Mount Rainier, Washington, in the Biological Survey collection, U. S. National Museum, probably represents a distinct form. Additional material secured on Mount Rainier in 1919 by a field party of the Biological Survey and coöperating institutions demonstrates the accuracy of Riley's suggestion. For the loan of material or access to collections I am indebted to Prof. J. W. Hungate, of the State Normal School, Cheney, Washington, Stanley G. Jewett, Portland, Oregon, J. M. Edson, Bellingham, Washington, and to the authorities of the U. S. National Museum. For many helpful suggestions, the loan of measurements in manuscript, and other courtesies, I am under obligation to J. H. Riley of the U. S. National Museum. Edward A. Preble, T. S. Palmer, Alexander Wetmore, and Harry C. Oberholser of the Biological Survey have also been generous with advice and help.

Lagopus leucurus rainierensis, new subspecies

Rainier White-tailed Ptarmigan

Lagopus leucurus, Ridgway, Man. N. Amer. Birds, ed. 2, 1896, p. 202 (probably part); Chapman, Bull. Amer. Mus. Nat. Hist., vol. 16, 1902, p. 237 (part); Dawson, Birds of Washington, 1909, vol. 2, p. 590 (part); American Ornithologists' Union Check-List of North American Birds, 1910, p. 142 (probably part); Riley, Can. Alp. Journ., 1912, pp. 59-60 (part).

Diagnosis.—Adults in nuptial plumage similar to *Lagopus leucurus leucurus*, but dark areas more blackish; buffy wash over light areas not so consistently present, and when present paler.

Type.—No. 269375, U. S. Nat. Mus. (Biological Survey coll.); adult female; Pinnacle Peak, 6,200 feet, Mount Rainier, Washington; July 19, 1919; collected by W. P. Taylor; original no. 479.